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REMARKS

The Applicant would like to thank the Examiner for the analysis contained in the Examination Report dated March 18, 2003.

Only claim 45 is presently pending in this application while the remaining claims are canceled from this case.

First, the drawings are objected to for the reasons noted in the official action. All of the raised drawing objections are believed to be overcome by the requested drawing amendments accompanying the attached submission. If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same. New formal drawings will follow once the Examiner approves the requested drawing amendments.

Next, claim 45 stands rejected as being anticipated by Smith et al. '124. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Smith et al. '124 teaches a method of fabrication of a pressure sensor having a pressure membrane 20. The teaching of Smith et al. '124, as summarized in column 2 commencing at line 55, is:

"By selecting silicon having a specific crystal orientation, such as (410) which has an orientation of 45 degrees with respect to the (111) planes, in combination with silicon having another specific orientation, such as (100) which has an orientation of 54.7 degrees with respect to the (111) planes, a configuration can be achieved which conveys light directly between an optic fiber positioned in almost any direction relative to the sensing membrane and the sensing membrane."

The Examiner has characterized Smith et al. '124 as being "monolithic bulk crystal silicon" and has referred the Applicant to Fig. 2 of the Smith et al. '124 reference. The Examiner has given a broad definition to the term "monolithic" when he characterizes the Smith et al. '124 reference as teaching a monolithic body as the crystal of Smith et al. '124 is

intentionally made up of different types of silicon while the term "monolithic" is frequently understood to have the general meaning of comprised of a single part.

In response, however, the Applicant amended pending claim 45, to distinguish over the Smith et al. '124 reference, by adding the limitation that the monolithic bulk crystal silicon is "homogeneous". The use of a homogeneous monolithic bulk crystal silicon is contrary to the specific teachings of Smith et al. '124.

The Applicant and those of ordinary skill in the arts are generally aware and agree that it would be extremely difficult, if not impossible, to post process a device produced by following the teachings of the Smith et al. '124 reference. This is due to the differing properties of the different types of silicon which make up the device. For example, while the 410 silicon may provide the desired 45 degree plane (45.56 degrees, actually) relative to the surface 410 crystal plane, etching of that 410 silicon to achieve the desired 45 degree plane is a fast etch on all other planes. The 410 silicon is extremely delicate to work with as the resulting structure tends to undercut and assume a trapezoidally etched shape.

In addition to the above, Smith et al. '124 teaches etching along crystalline planes as found in column 4, line 48 through column 5, line 7. Specifically, "since the {111} crystal planes represent a terminal etch plane, the etch relief of the microstructures is governed by the {111} crystal plane angle of intersection....." The etching process as taught by Smith et al. '124 necessitates a separate bonding process. This bonding process is fraught with difficulties, namely it adds a bonding step and alignment is tricky.

Next, the Examination Report states that claims 25 and 45 stand rejected as being unpatentable over Stanley '658 in view of Madou. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

With respect to the Stanley '658 reference, this reference teaches, in column 2, lines 25-35, that the inlet and outlet passages are etched along crystalline planes. It is respectfully submitted that such passages are quite different from the presently claimed invention which

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accomplishes etching independent of the crystalline planes. To further distinguish the present invention from the prior art, claim 45 now further recites the features of "an inlet passage and an outlet passage anistropically etched independent of crystalline planes, which intersect at the selected one of the several crystalline planes." Such calimed features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

The teaching of Madou relates to the positioning of the planes and difficulties involved in exposing those planes, including such problems as undercutting (pages 152 and 153) and controlling of the etching process. Madou teaches, if the inlet and outlet passages are etched along crystalline planes, it is not possible to etch the mirror surface along crystalline planes. Stanley `658 has not formed the mirror surface along an etch plane and never in the references says otherwise.

It is, therefore, the belief and position of the Applicant that the present invention as recited in amended claim 45 is fully distinguished over and from the teachings of Smith et al. `124 under 35 U.S.C. § 102 and the teachings of Stanley `658 in view of Madou under 35 U.S.C. § 103 for the reasons discussed above. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all of the outstanding rejections of claim 45.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Smith et al. `124, Stanley `658 and/or Madou references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit


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substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing amendments and arguments, it is respectfully submitted that the present application is now in a condition for allowance. The Applicant, therefore, respectfully requests the entry of the amendments submitted herein, the withdrawal of the finality of the present action, and the early issue of a Notice of Allowance.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,


Michael J. Bujold, Reg. No. 32,018
Customer No. 020210
Davis & Bujold, P.L.L.C.
Fourth Floor
500 North Commercial Street
Manchester NH 03101-1151
Telephone 603-624-9220
Facsimile 603-624-9229
E-mail: patent@davisandbujold.com

CERTIFICATE OF MAILING

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By: _____

Print Name: Michael J. Bujold